Washington State Department of Health

Health Alert - September 21, 2006

E coli O157:H7 gastroenteritis associated with raw spinach

Background

Three Washington residents have been linked to a nationwide outbreak of *E. coli* O157:H7 associated with raw spinach consumption; 146 cases in 23 states have been reported to CDC. The clinical isolates all have an indistinguishable pulsed-field gel electrophoresis (PFGE) pattern. Healthcare providers should be familiar with the signs and symptoms of *E. coli* O157:H7 gastroenteritis, the importance of obtaining stool specimens for culture and the management of patients suspected to have the infection. Enterohemorrhagic *E. coli* infection is a notifiable condition in Washington.

E. coli O157:H7 is found in cattle herds, colonizes other species and causes acute gastroenteritis in humans. In Washington, most cases occur during summer with an average of about 130 cases/year. *E. coli* O157:H7 gastroenteritis is usually associated with consumption of raw or undercooked ground beef, but outbreaks have also followed consumption of unpasteurized milk, apple cider and orange juice; sprouts, lettuce, other vegetables and fruits, sausage and venison; contact with contaminated recreational water or animals. Person-to-person transmission also occurs.

Clinical features of *E. coli* O157:H7

Symptoms of gastroenteritis develop within 1-8 days of exposure and last about 5-10 days. The onset is acute with diarrhea and severe abdominal cramping; visibly bloody stool develops in about 85% of patients and most are afebrile. Children <5 years of age and the elderly are most likely to develop complications, including hemolytic-uremic syndrome (HUS) and thrombotic thrombocytopenic purpura; sequelae following complications are common and the case fatality rate for HUS is 3-5%.

Diagnosis of *E. coli* O157:H7

Any patient with the acute onset of bloody diarrhea should be suspected of having *E. coli* O157:H7. The diagnostic test of choice is isolation of *E. coli* O157:H7 from stool. Isolates of the organism are critical for an investigation as the molecular fingerprint helps public health agencies identify outbreaks and trace the source of the contamination. Special medium (sorbitol-MacConkey agar [SMAC]) is required to isolate *E. coli* O157:H7, so inform your microbiology laboratory that *E. coli* O157:H7 is suspected. Enzyme immunoassays (EIA) can detect Shiga toxin in stool quickly, however, reactive specimens should be cultured so a molecular fingerprint of the organism is available as needed. Washington law requires clinical laboratories to forward *E. coli* O157:H7 isolates to the DOH State Public Health Laboratories where serotyping and PFGE analysis are performed.

Management of patients with *E. coli* O157:H7

Anti-motility agents are contra-indicated in enterohemorrhagic gastroenteritis. Retrospective studies have found no benefit from antimicrobials and suggest they may contribute to the development of HUS -- therefore, ***antibiotics are not recommended for patients with suspected or confirmed E. coli O157:H7***. Oral hydration is sufficient for most patients, but some experts recommend hospital admission and hydration for patients with suspected EHEC, especially those at risk for HUS. Monitor patients daily with complete blood count with smear, blood urea nitrogen and creatinine concentrations to detect incipient HUS. Patients with no laboratory evidence of hemolysis, thrombocytopenia or nephropathy by the third day following the resolution of diarrhea have a low risk of developing HUS.

For additional information or to report a confirmed or suspected infection, please contact your local health department (contact information: http://www.doh.wa.gov/LHJMap/LHJMap.htm) or the Washington State Department of Health Communicable Disease Epidemiology Section @ 206.418.5500 or 877.539.4344.